Selected Acquisition Report (SAR)

RCS: DD-A&T(Q&A)823-101

H-1 Upgrades (4BW/4BN) (H-1 Upgrades)

As of FY 2017 President's Budget

Defense Acquisition Management
Information Retrieval
(DAMIR)

Table of Contents

Common Acronyms and Abbreviations for MDAP Programs

Acq O&M - Acquisition-Related Operations and Maintenance
ACAT - Acquisition Category
ADM - Acquisition Decision Memorandum
APB - Acquisition Program Baseline
APPN - Appropriation
APUC - Average Procurement Unit Cost
$B - Billions of Dollars
BA - Budget Authority/Budget Activity
Blk - Block
BY - Base Year
CAPE - Cost Assessment and Program Evaluation
CARD - Cost Analysis Requirements Description
CDD - Capability Development Document
CLIN - Contract Line Item Number
CPD - Capability Production Document
CY - Calendar Year
DAB - Defense Acquisition Board
DAE - Defense Acquisition Executive
DAMIR - Defense Acquisition Management Information Retrieval
DoD - Department of Defense
DSN - Defense Switched Network
EMD - Engineering and Manufacturing Development
EVM - Earned Value Management
FOC - Full Operational Capability
FMS - Foreign Military Sales
FRP - Full Rate Production
FY - Fiscal Year
FYDP - Future Years Defense Program
ICE - Independent Cost Estimate
IOC - Initial Operational Capability
Inc - Increment
JROC - Joint Requirements Oversight Council
$K - Thousands of Dollars
KPP - Key Performance Parameter
LRIP - Low Rate Initial Production
$M - Millions of Dollars
MDA - Milestone Decision Authority
MDAP - Major Defense Acquisition Program
MILCON - Military Construction
N/A - Not Applicable
O&M - Operations and Maintenance
ORD - Operational Requirements Document
OSD - Office of the Secretary of Defense
O&S - Operating and Support
PAUC - Program Acquisition Unit Cost

PB - President’s Budget
PE - Program Element
PEO - Program Executive Officer
PM - Program Manager
POE - Program Office Estimate
RDT&E - Research, Development, Test, and Evaluation
SAR - Selected Acquisition Report
SCP - Service Cost Position
TBD - To Be Determined
TY - Then Year
UCR - Unit Cost Reporting
U.S. - United States
USD(AT&L) - Under Secretary of Defense (Acquisition, Technology and Logistics)

Program Information

Program Name

H-1 Upgrades (4BW/4BN) (H-1 Upgrades)

DoD Component

Navy

Responsible Office

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References

SAR Baseline (Production Estimate)

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated December 22, 2008

Approved APB

Navy Acquisition Executive (NAE) Approved Acquisition Program Baseline (APB) dated February 11, 2011

Mission and Description

The mission of the AH-1Z attack helicopter is to provide rotary wing close air support, anti-armor, armed escort, armed/visual reconnaissance and fire support coordination capabilities under day/night and adverse weather conditions for the United States Marine Corps. The mission of the UH-1Y utility helicopter is to provide command, control and assault support under day/night and adverse weather conditions. Both the AH-1Z and UH-1Y aircraft incorporate state-of-the-art designs, which serve to improve capability, lethality, and survivability. Major modifications include a new four-bladed rotor system with semi-automatic blade fold of the new composite rotor blades, new performance matched transmissions, a new four-bladed tail rotor and drive system, upgraded landing gear, and pylon structural modifications. The H-1 Upgrades aircraft have increased maneuverability, speed, and payload capability. Both aircraft have fully integrated common cockpits/avionics that reduce operator workload and improve situational awareness, thus increasing safety.

Executive Summary

Both the UH-1Y and AH-1Z continue to meet all KPPs. The UH-1Y has completed Operation Enduring Freedom deployments, amassing over 162,000 flight hours. All West coast Marine Expeditionary Units (MEU) deploy with UH-1Y and AH-1Z aircraft. East coast MEUs deploy with UH-1Y and AH-1W aircraft.

Production of H-1 Upgrades aircraft continues at Bell Helicopter with final assembly and delivery occurring in Amarillo, Texas. There are 243 aircraft (Lots 1-12) on contract, which includes 148 UH-1Y, 37 AH-1Z remanufactured and 58 AH-1Z Build New (ZBN) aircraft. Lot 12 (FY 2015) also includes the first three of 12 AH-1Z Build New aircraft for Pakistan under FMS case PK-P-SBO. As of January 25, 2016, 174 production aircraft (127 UH-1Ys, 37 remanufactured AH-1Zs, and 10 ZBNs) have been delivered to the Fleet. All remaining AH-1Z deliveries are Build New aircraft.

The program office continues to make progress on improving material availability, reliability, as well as depot capability. Corrective action plans for readiness degraders are maturing & progressing towards fielding, or fielded & being validated for effectiveness. Depot capability continues to increase across the Fleet Readiness Centers.

A Letter of Offer and Acceptance (LOA) was signed by Pakistan on July 10, 2015 for 12 AH-1Z helicopters, initial support, and training. The LOA value is $681M, which includes the total package approach.

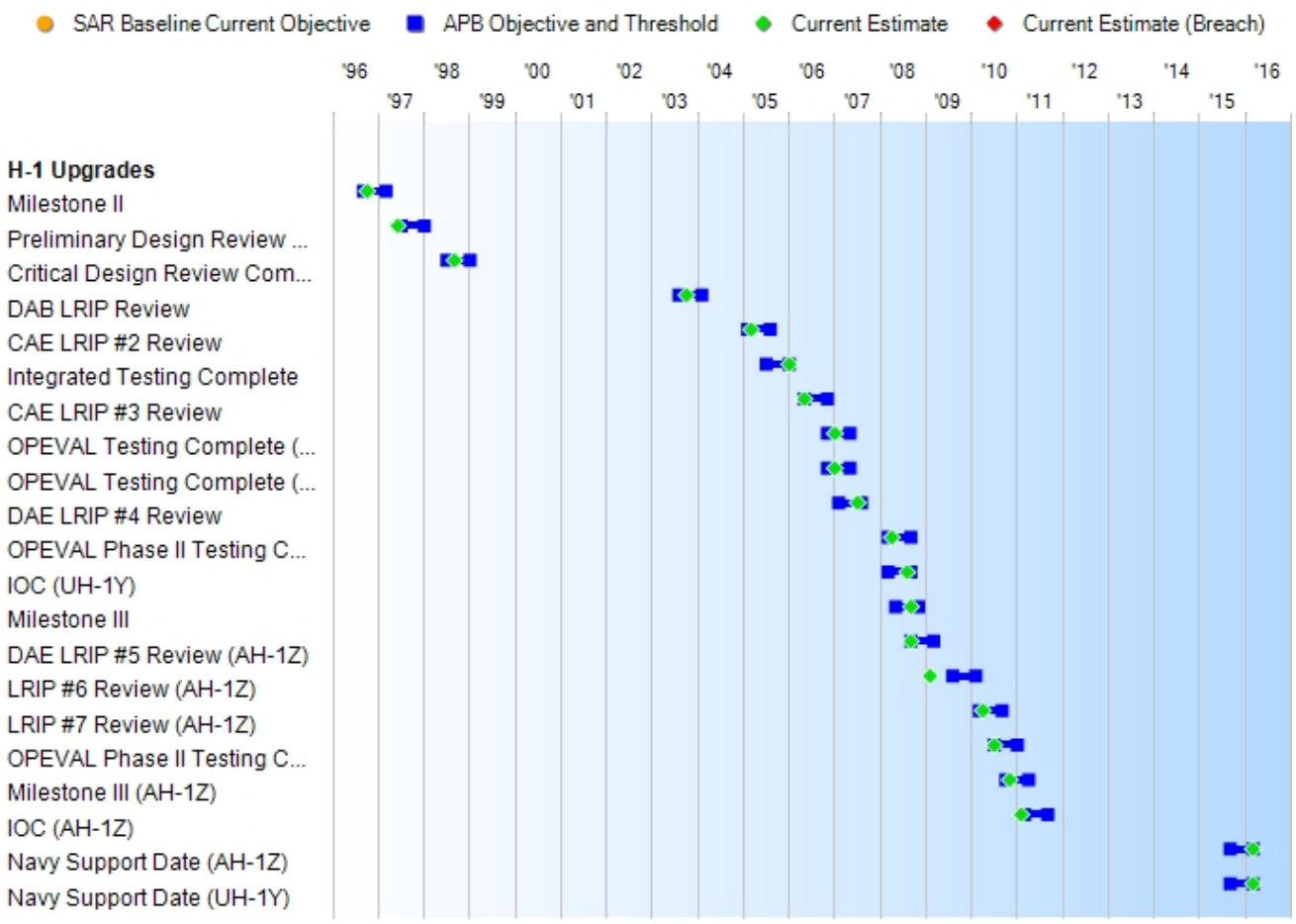
There are no significant software-related issues with this program at this time.

Threshold Breaches

APB Breaches		
Schedule		☐
Performance		☐
Cost	RDT&E	☐
	Procurement	☐
	MILCON	☐
	Acq O&M	☐
O&S Cost		☐
Unit Cost	PAUC	☐
	APUC	☐

Nunn-McCurdy Breaches		
Current UCR Baseline		
	PAUC	None
	APUC	None
Original UCR Baseline		
	PAUC	None
	APUC	None

Schedule


SAR Baseline Current Objective
APB Objective and Threshold
Current Estimate
Current Estimate (Breach)
'96
'97
'98
'99
'00
'01
'02
'03
'04
'05
'06
'07
'08
'09
'10
'11
'12
'13
'14
'15
'16
H-1 Upgrades
Milestone II
Preliminary Design Review ...
Critical Design Review Com...
DAB LRIP Review
CAE LRIP #2 Review
Integrated Testing Complete
CAE LRIP #3 Review
OPEVAL Testing Complete (...
OPEVAL Testing Complete (...
DAE LRIP #4 Review
OPEVAL Phase II Testing C...
IOC (UH-1Y)
Milestone III
DAE LRIP #5 Review (AH-1Z)
LRIP #6 Review (AH-1Z)
LRIP #7 Review (AH-1Z)
OPEVAL Phase II Testing C...
Milestone III (AH-1Z)
IOC (AH-1Z)
Navy Support Date (AH-1Z)
Navy Support Date (UH-1Y)

Schedule Events					
Events	SAR Baseline Production Estimate	Current APB Production Objective/Threshold		Current Estimate	
Milestone II	Sep 1996	Sep 1996	Mar 1997	Oct 1996	
Preliminary Design Review Complete	Jul 1997	Jul 1997	Jan 1998	Jun 1997	
Critical Design Review Complete	Jul 1998	Jul 1998	Jan 1999	Sep 1998	
DAB LRIP Review	Aug 2003	Aug 2003	Feb 2004	Oct 2003	
CAE LRIP #2 Review	Feb 2005	Feb 2005	Aug 2005	Mar 2005	
Integrated Testing Complete	Jul 2005	Jul 2005	Jan 2006	Jan 2006	
CAE LRIP #3 Review	May 2006	May 2006	Nov 2006	May 2006	
OPEVAL Testing Complete (AH-1Z)	Nov 2006	Nov 2006	May 2007	Jan 2007	
OPEVAL Testing Complete (UH-1Y)	Nov 2006	Nov 2006	May 2007	Jan 2007	
DAE LRIP #4 Review	Feb 2007	Feb 2007	Aug 2007	Jul 2007	
OPEVAL Phase II Testing Complete (UH-1Y)	Mar 2008	Mar 2008	Sep 2008	Apr 2008	
IOC (UH-1Y)	Mar 2008	Mar 2008	Sep 2008	Aug 2008	
Milestone III	May 2008	May 2008	Nov 2008	Sep 2008	
DAE LRIP #5 Review (AH-1Z)	Sep 2008	Sep 2008	Mar 2009	Sep 2008	
LRIP #6 Review (AH-1Z)	Aug 2009	Aug 2009	Feb 2010	Feb 2009	
LRIP #7 Review (AH-1Z)	Mar 2010	Mar 2010	Sep 2010	Apr 2010	
OPEVAL Phase II Testing Complete (AH-1Z)	Jul 2010	Jul 2010	Jan 2011	Jul 2010	
Milestone III (AH-1Z)	Oct 2010	Oct 2010	Apr 2011	Nov 2010	
IOC (AH-1Z)	Mar 2011	Mar 2011	Sep 2011	Feb 2011	
Navy Support Date (AH-1Z)	Mar 2012	Sep 2015	Mar 2016	Mar 2016	(Ch-1)
Navy Support Date (UH-1Y)	Mar 2012	Sep 2015	Mar 2016	Mar 2016	(Ch-1)

Change Explanations

(Ch-1) The Navy Support Date (AH-1Z and UH-1Y) Current Estimate has changed from Sep 2015 to Mar 2016 to reflect the Threshold requirement.

Acronyms and Abbreviations

CAE - Component Acquisition Executive
OPEVAL - Operational Evaluation

Performance

Performance Characteristics					
SAR Baseline Production Estimate	**Current APB Production Objective/Threshold**		**Demonstrated Performance**	**Current Estimate**	
4BW (AH-1W/AH-1Z)					
MFHBA (hrs)					
35.0	35.0	24.0	63.8	63.8	(Ch-1)
MMH/FH (hrs)					
3.6	3.6	4.3	2.5	2.5	(Ch-1)
Cruise Speed (kts)					
165	165	135	139	139	
Payload (Hot Day) (lbs)					
3500 lbs	3500 lbs	2500 lbs 6 Wing Stations 4 Universal Under Wing Stations	3429	3429	
Weapon Stations					
Universal Mounts					
6	6	4	4	4	
Precision Guided Munitions					
16	16	12	16	16	
Maneuverability/Agility (G's)					
-0.5 to +2.5	-0.5 to +2.5	-0.5 to +2.5	-0.5 to +2.5	-0.5 to +2.5	
Mission Radius (NM)					
200 NM	200 NM	110 NM	135 NM x 1	135 NM x 1	
Shipboard Compatibility					
Fully compatible to include blade fold.	Fully compatible to include blade fold.	Fully compatible to include blade fold.	Fully compatible to include blade fold.	Fully compatible to include blade fold.	
Interoperability					
The system must fully support execution of all operational activities identified in the applicable joint and system integrated architectures and the system must satisfy the technical requirements for Net Centric military	The system must fully support execution of all operational activities identified in the applicable joint and system integrated architectures and the system must satisfy the technical requirements for Net-Centric military	The system must fully support execution of joint critical operational activities identified in the applicable joint and system integrated architectures and the system must satisfy the technical requirements for	The system must fully support execution of all operational activities identified in the applicable joint and system integrated architectures and the system must satisfy the technical requirements for Net Centric military	The system must fully support execution of all operational activities identified in the applicable joint and system integrated architectures and the system must satisfy the technical requirements for Net Centric military	

operations to include: 1) DISR mandated GIG IT standards and profiles identified in the TV-1, 2) DISR mandated GIG KIPs identified in the KIP declaration table, 3) NCOW RM Enterprise Services 4) Information assurance requirements including availability, integrity, authenticat-ion, confidential-ity, and non-repudiation, and issuance of an ATO by the DAA, and 5) Operationally effective information exchanges; and mission critical performance and information assurance attributes, data correctness, data availability, and consistent data processing specified in the applicable joint and system integrated architecture views.	operations to include: 1) DISR-mandated GIG IT standards and profiles identified in the TV-1, 2) DISR-mandated GIG KIPs identified in the KIP declaration table, 3) NCOW RM Enterprise Services 4) Information assurance requirements including availability, integrity, authenticat-ion, confidenti-ality, and non-repudiation, and issuance of an ATO by the DAA, and 5) Operationally effective information exchanges; and mission critical performance and information assurance attributes, data correctness, data availability, and consistent data processing specified in the applicable joint and system integrated architecture views.	transition to Net-Centric military operations to include: 1) DISR-mandated GIG IT standards and profiles identified in the TV-1, 2) DISR-mandated GIG KIPs identified in the KIP declaration table, 3) NCOW RM Enterprise Services 4) Information assurance requirements including availability, integrity, authenticat-ion, confidential-ity, and non-repudiation, and issuance of an IATO by the DAA, and 5) Operationally effective information exchanges; and mission critical performance and information assurance attributes, data correctness, data availability, and consistent data processing specified in the applicable joint and system integrated architecture views.	operations to include: 1) DISR mandated GIG IT standards and profiles identified in the TV-1, 2) DISR mandated GIG KIPs identified in the KIP declaration table, 3) NCOW RM Enterprise Services 4) Information assurance requirements including availability, integrity, authentication, confidentiality, and non-repudiation, and issuance of an ATO by the DAA, and 5) Operationally effective information exchanges; and mission critical performance and information assurance attributes, data correctness, data availability, and consistent data processing specified in the applicable joint and system integrated architecture views.	operations to include: 1) DISR mandated GIG IT standards and profiles identified in the TV-1, 2) DISR mandated GIG KIPs identified in the KIP declaration table, 3) NCOW RM Enterprise Services 4) Information assurance requirements including availability, integrity, authentication, confidentiality, and non-repudiation, and issuance of an ATO by the DAA, and 5) Operationally effective information exchanges; and mission critical performance and information assurance attributes, data correctness, data availability, and consistent data processing specified in the applicable joint and system integrated architecture views.
Force Protection (Seating)				
Two AH-1Z pilot seats that are stroking, crashworthy, and capable of sustaining 20Gs longitudinal, 20Gs vertical, and 10 Gs laterally.	Two AH-1Z pilot seats that are stroking, crashworthy, and capable of sustaining 20Gs longitudinal, 20Gs vertical, and 10 Gs laterally.	Two AH-1Z pilot seats that are stroking, crashworthy, and capable of sustaining 20Gs longitudinal, 20Gs vertical, and 10 Gs laterally.	Two AH-1Z pilot seats that are stroking, crashworthy, and capable of sustaining 20Gs longitudinal, 20Gs vertical, and 10Gs laterally.	Two AH-1Z pilot seats that are stroking, crashworthy, and capable of sustaining 20Gs longitudinal, 20Gs vertical, and 10Gs laterally.
Survivability (Ballistic Tolerance/Hardening)				
Airframe structure and flight critical systems shall be ballistic tolerant/ hardened against 23 mm HEI.	Airframe structure and flight critical systems shall be ballistic tolerant/ hardened against 23 mm HEI.	Airframe structure and flight critical systems shall be ballistic tolerant/ hardened against 12.7 mm API.	Airframe structure and flight critical systems shall be ballistic tolerant/hardened against 12.7 mm	Airframe structure and flight critical systems shall be ballistic tolerant/hardened against 12.7 mm

			API.	API.	
4BN (UH-1N/UH-1Y)					
MFHBA (hrs)					
40.2	40.2	33.1	56.6	56.6	(Ch-2)
MMH/FH (hrs)					
2.9	2.9	3.9	2.0	2.0	(Ch-2)
Cruise Speed (kts)					
165	165	140	155	155	
Payload (Hot Day) (lbs)					
4500	4500	2800	2982	2982	
Weapon Stations					
2 Univ. Mounts	2 Univ. Mounts	2 Hard Mounts	2 Hard Mounts	2 Hard Mounts	
Maneuverability/Agility (G's)					
-0.5 to +2.5	-0.5 to +2.5	-0.5 to +2.3	-0.5 to +2.3	-0.5 to +2.3	
Mission Radius (NM)					
200 NM	200 NM	110 NM	130 NM	130 NM	
Shipboard Compatibility					
Fully compatible to include blade fold.	Fully compatible to include blade fold.	Fully compatible to include blade fold.	Fully compatible to include blade fold.	Fully compatible to include blade fold.	
Interoperability					
The system must fully support execution of all operational activities identified in the applicable joint and system integrated architectures and the system must satisfy the technical requirements for Net Centric military operations to include: 1) DISR mandated GIG IT standards and profiles identified in the TV-1, 2) DISR mandated GIG KIPs identified in the KIP declaration table, 3) NCOW RM Enterprise Services 4) Information assurance requirements including availability,	The system must fully support execution of all operational activities identified in the applicable joint and system integrated architectures and the system must satisfy the technical requirements for Net-Centric military operations to include: 1) DISR-mandated GIG IT standards and profiles identified in the TV-1, 2) DISR-mandated GIG KIPs identified in the KIP declaration table, 3) NCOW RM Enterprise Services 4) Information assurance requirements including availability,	The system must fully support execution of joint critical operational activities identified in the applicable joint and system integrated architectures and the system must satisfy the technical requirements for transition to Net-Centric military operations to include: 1) DISR-mandated GIG IT standards and profiles identified in the TV-1, 2) DISR-mandated GIG KIPs identified in the KIP declaration table, 3) NCOW RM Enterprise Services 4) Information assurance	The system must fully support execution of all operational activities identified in the applicable joint and system integrated architectures and the system must satisfy the technical requirements for Net Centric military operations to include: 1) DISR mandated GIG IT standards and profiles identified in the TV-1, 2) DISR mandated GIG KIPs identified in the KIP declaration table, 3) NCOW RM Enterprise Services 4) Information assurance requirements including availability,	The system must fully support execution of all operational activities identified in the applicable joint and system integrated architectures and the system must satisfy the technical requirements for Net Centric military operations to include: 1) DISR mandated GIG IT standards and profiles identified in the TV-1, 2) DISR mandated GIG KIPs identified in the KIP declaration table, 3) NCOW RM Enterprise Services 4) Information assurance requirements including availability,	

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Force Protection (Seating)				
Two UH-1Y pilot seats and ten UH-1Y cabin seats that are stroking, crash-worthy, and capable of sustain-ing 20Gs longitudinal, 20Gs vertical, and 10 Gs laterally.	Two UH-1Y pilot seats and ten UH-1Y cabin seats that are stroking, crash-worthy, and capable of sustaining 20Gs longitudinal, 20Gs vertical, and 10 Gs laterally.	Two UH-1Y pilot seats and ten UH-1Y cabin seats that are stroking, crash-worthy, and capable of sustaining 20Gs longitudinal, 20Gs vertical, and 10 Gs laterally.	Two UH-1Y pilot seats and ten UH-1Y cabin seats that are stroking, crashworthy, and capable of sustaining 20Gs longitudinal, 20Gs vertical, and 10Gs laterally.	Two UH-1Y pilot seats and ten UH-1Y cabin seats that are stroking, crashworthy, and capable of sustaining 20Gs longitudinal, 20Gs vertical, and 10Gs laterally.
Survivability (Ballistic Tolerance/Hardening)				
Airframe structure and flight critical systems shall be ballistic tolerant/hardened against 23 mm HEI.	Airframe structure and flight critical systems shall be ballistic tolerant/hardened against 23 mm HEI.	Airframe structure and flight critical systems shall be ballistic tolerant/hardened against 12.7 mm API.	Airframe structure and flight critical systems shall be ballistic tolerant/hardened against 12.7 mm API.	Airframe structure and flight critical systems shall be ballistic tolerant/hardened against 12.7 mm API.

Requirements Reference

UH-1Y CPD and AH-1Z CPD dated June 11, 2007 as modified by JROC Memorandum 195-08 dated October 14, 2008

Change Explanations

(Ch-1) The current estimate values for R&M have changed as follows based on the Naval Air Systems Command R&M Review Board #106 in December 2015: 4BW (AH-1W/AH-1Z) MFHBA from 57.8 to 63.8 and MMH/FH from 1.9 to 2.5.
(Ch-2) The current estimate values for R&M have changed as follows based on the Naval Air Systems Command R&M Review Board #106 in December 2015: 4BN (UH-1N/UH-1Y) MFHBA from 61.5 to 56.6 and MMH/FH from 2.4 to 2.0.

Acronyms and Abbreviations

API - Armor Piercing Incendiary
ATO - Authority to Operate
DAA - Designated Approving Authority
DISR - DoD Information Technology Standards Registry
FRACAS - Failure Reporting, Analysis and Corrective Action System
G's - Gravitational forces
GIG - Global Information Grid
HEI - High Explosive Incendiary
hrs - Hours
IATO - Interim Authority to Operate
IT - Information Technology
KIP - Key Interface Protocol
kts - Knots
lbs - Pounds
MFHBA - Mean Flight Hours Between Abort
mm - Millimeter
MMH/FH - Maintenance Man Hours per Flight Hours
NCOW - Net-Centric Operation and Warfare
NM - Nautical Miles
R&M - Reliability and Maintainability
RM - Reference Model
TV-1 - Technical Standards Profile
Univ. - Universal

Track to Budget

RDT&E

Appn	BA	PE
Navy 1319	05	0604245N

Project	Name	
2279	H-1 Upgrades	(Sunk)

Procurement

Appn	BA	PE
Navy 1506	01	0206131M

Line Item	Name	
0178	H-1 Upgrades (UH-1Y/AH-1Z)	

Appn	BA	PE
Navy 1506	06	0206131M

Line Item	Name	
0605	Spares and Repair Parts	(Sunk)

Notes

Aircraft Procurement, Navy - BA 05 for Line Item 0532, PE 0206131M, is incorporated into the program as a subset of total O&S.

MILCON

Appn	BA	PE
Navy 1205	01	0216496M

Project	Name	
991	H-1 Y/Z Helicopter Gearbox Repair & Test Facility	(Sunk)

Cost and Funding

Cost Summary

Total Acquisition Cost							
Appropriation	BY 2008 $M			BY 2008 $M	TY $M		
	SAR Baseline Production Estimate	Current APB Production Objective/Threshold		Current Estimate	SAR Baseline Production Estimate	Current APB Production Objective	Current Estimate
RDT&E	1799.2	1848.3	2033.1	1704.1	1644.1	1696.2	1537.1
Procurement	9404.2	10088.4	11097.2	9894.6	10542.7	11022.1	10871.2
Flyaway	--	--	--	8348.0	--	--	9234.3
Recurring	--	--	--	7853.2	--	--	8716.4
Non Recurring	--	--	--	494.8	--	--	517.9
Support	--	--	--	1546.6	--	--	1636.9
Other Support	--	--	--	1300.9	--	--	1389.2
Initial Spares	--	--	--	245.7	--	--	247.7
MILCON	0.0	16.3	17.9	16.0	0.0	17.6	17.6
Acq O&M	0.0	0.0	--	0.0	0.0	0.0	0.0
Total	11203.4	11953.0	N/A	11614.7	12186.8	12735.9	12425.9

Confidence Level

Confidence Level of cost estimate for current APB: 50%

The estimate recommendation aims to provide sufficient resources to execute the program under normal conditions, encountering average levels of technical, schedule, and programmatic risk and external interference. It is consistent with average resource expenditures on historical efforts of similar size, scope, and complexity and represents a 50% confidence level.

Total Quantity			
Quantity	SAR Baseline Production Estimate	Current APB Production	Current Estimate
RDT&E	4	4	4
Procurement	349	349	347
Total	353	353	351

Quantity Notes

The four RDT&E aircraft include two UH-1Ys and two AH-1Zs. The 347 Procurement aircraft include 37 AH-1W helicopters remanufactured into AH-1Zs, 149 AH-1Z Build New models, 10 UH-1N helicopters remanufactured into UH-1Ys, and 151 new UH-1Y models. Program currently funded to 347 aircraft; Program of Record remains 349.

Cost and Funding

Funding Summary

Appropriation Summary									
FY 2017 President's Budget / December 2015 SAR (TY$ M)									
Appropriation	Prior	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	To Complete	Total
RDT&E	1537.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1537.1
Procurement	7404.9	840.8	817.0	887.7	908.8	6.0	6.0	0.0	10871.2
MILCON	17.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.6
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PB 2017 Total	8959.6	840.8	817.0	887.7	908.8	6.0	6.0	0.0	12425.9
PB 2016 Total	8963.1	857.0	917.7	899.5	921.6	16.9	16.3	0.0	12592.1
Delta	-3.5	-16.2	-100.7	-11.8	-12.8	-10.9	-10.3	0.0	-166.2

Quantity Summary										
FY 2017 President's Budget / December 2015 SAR (TY$ M)										
Quantity	Undistributed	Prior	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	To Complete	Total
Development	4	0	0	0	0	0	0	0	0	4
Production	0	240	29	24	27	27	0	0	0	347
PB 2017 Total	4	240	29	24	27	27	0	0	0	351
PB 2016 Total	4	240	28	27	27	27	0	0	0	353
Delta	0	0	1	-3	0	0	0	0	0	-2

Cost and Funding

Annual Funding By Appropriation

Annual Funding 1319 | RDT&E | Research, Development, Test, and Evaluation, Navy							
Fiscal Year	Quantity	TY $M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1996	--	--	--	--	--	--	10.9
1997	--	--	--	--	--	--	67.9
1998	--	--	--	--	--	--	81.3
1999	--	--	--	--	--	--	116.7
2000	--	--	--	--	--	--	178.5
2001	--	--	--	--	--	--	138.2
2002	--	--	--	--	--	--	167.4
2003	--	--	--	--	--	--	232.9
2004	--	--	--	--	--	--	99.1
2005	--	--	--	--	--	--	168.2
2006	--	--	--	--	--	--	58.6
2007	--	--	--	--	--	--	26.4
2008	--	--	--	--	--	--	12.6
2009	--	--	--	--	--	--	4.4
2010	--	--	--	--	--	--	28.1
2011	--	--	--	--	--	--	57.6
2012	--	--	--	--	--	--	60.6
2013	--	--	--	--	--	--	27.7
Subtotal	4	--	--	--	--	--	1537.1

Annual Funding 1319 | RDT&E | Research, Development, Test, and Evaluation, Navy							
Fiscal Year	Quantity	BY 2008 $M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1996	--	--	--	--	--	--	13.3
1997	--	--	--	--	--	--	82.0
1998	--	--	--	--	--	--	97.4
1999	--	--	--	--	--	--	138.1
2000	--	--	--	--	--	--	208.3
2001	--	--	--	--	--	--	159.1
2002	--	--	--	--	--	--	190.7
2003	--	--	--	--	--	--	261.5
2004	--	--	--	--	--	--	108.3
2005	--	--	--	--	--	--	179.0
2006	--	--	--	--	--	--	60.5
2007	--	--	--	--	--	--	26.6
2008	--	--	--	--	--	--	12.5
2009	--	--	--	--	--	--	4.3
2010	--	--	--	--	--	--	27.0
2011	--	--	--	--	--	--	54.1
2012	--	--	--	--	--	--	56.0
2013	--	--	--	--	--	--	25.4
Subtotal	4	--	--	--	--	--	1704.1

Annual Funding 1506 | Procurement | Aircraft Procurement, Navy							
Fiscal Year	Quantity	TY $M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2001	--	--	--	--	--	6.0	6.0
2002	--	--	--	--	--	--	--
2003	--	--	--	--	--	--	--
2004	9	197.8	--	23.8	221.6	105.9	327.5
2005	7	136.9	--	18.7	155.6	78.3	233.9
2006	7	150.9	--	42.2	193.1	162.0	355.1
2007	11	228.8	--	136.5	365.3	170.1	535.4
2008	15	315.5	--	25.2	340.7	154.3	495.0
2009	24	514.0	--	42.6	556.6	80.5	637.1
2010	27	655.7	--	34.8	690.5	70.7	761.2
2011	31	688.5	--	77.6	766.1	127.0	893.1
2012	25	567.6	--	46.3	613.9	120.0	733.9
2013	30	772.8	--	3.8	776.6	89.6	866.2
2014	23	574.3	--	1.6	575.9	85.6	661.5
2015	31	792.3	--	--	792.3	106.7	899.0
2016	29	780.5	--	--	780.5	60.3	840.8
2017	24	719.8	--	6.4	726.2	90.8	817.0
2018	27	822.4	--	2.3	824.7	63.0	887.7
2019	27	798.6	--	56.1	854.7	54.1	908.8
2020	--	--	--	--	--	6.0	6.0
2021	--	--	--	--	--	6.0	6.0
Subtotal	347	8716.4	--	517.9	9234.3	1636.9	10871.2

Annual Funding 1506 | Procurement | Aircraft Procurement, Navy							
Fiscal Year	Quantity	BY 2008 $M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2001	--	--	--	--	--	6.8	6.8
2002	--	--	--	--	--	--	--
2003	--	--	--	--	--	--	--
2004	9	212.6	--	25.6	238.2	113.8	352.0
2005	7	143.1	--	19.6	162.7	81.8	244.5
2006	7	153.5	--	42.9	196.4	164.8	361.2
2007	11	227.5	--	135.7	363.2	169.1	532.3
2008	15	309.0	--	24.7	333.7	151.1	484.8
2009	24	496.5	--	41.2	537.7	77.7	615.4
2010	27	620.4	--	32.9	653.3	66.9	720.2
2011	31	638.8	--	72.0	710.8	117.8	828.6
2012	25	519.2	--	42.3	561.5	109.8	671.3
2013	30	699.3	--	3.4	702.7	81.2	783.9
2014	23	513.0	--	1.4	514.4	76.5	590.9
2015	31	697.3	--	--	697.3	93.9	791.2
2016	29	675.2	--	--	675.2	52.2	727.4
2017	24	611.1	--	5.4	616.5	77.1	693.6
2018	27	684.8	--	1.9	686.7	52.4	739.1
2019	27	651.9	--	45.8	697.7	44.2	741.9
2020	--	--	--	--	--	4.8	4.8
2021	--	--	--	--	--	4.7	4.7
Subtotal	347	7853.2	--	494.8	8348.0	1546.6	9894.6

Cost Quantity Information 1506 | Procurement | Aircraft Procurement, Navy		
Fiscal Year	**Quantity**	**End Item Recurring Flyaway (Aligned With Quantity) BY 2008 $M**
2001	--	--
2002	--	--
2003	--	--
2004	9	212.6
2005	7	143.1
2006	7	153.5
2007	11	227.5
2008	15	309.0
2009	24	496.5
2010	27	572.6
2011	31	632.5
2012	25	521.3
2013	30	693.1
2014	23	517.6
2015	31	695.1
2016	29	682.4
2017	24	611.1
2018	27	684.8
2019	27	700.5
2020	--	--
2021	--	--
Subtotal	347	7853.2

Annual Funding 1205 | MILCON | Military Construction, Navy and Marine Corps	
Fiscal Year	**TY $M**
	Total Program
2012	17.6
Subtotal	17.6

Annual Funding 1205 | MILCON | Military Construction, Navy and Marine Corps	
Fiscal Year	**BY 2008 $M**
	Total Program
2012	16.0
Subtotal	16.0

Low Rate Initial Production

Item	Initial LRIP Decision	Current Total LRIP
Approval Date	10/22/2003	6/7/2010
Approved Quantity	28	55
Reference	LRIP ADM	LRIP VII ADM
Start Year	2004	2004
End Year	2005	2010

The Current Total LRIP Quantity is more than 10% of the total production quantity due to the need to permit an orderly increase in the production rate and efficiency until successful completion of operational testing.

Foreign Military Sales

Country	Date of Sale	Quantity	Total Cost $M	Description
Pakistan	7/10/2015	12	57.9	FMS Case PK-P-BSO, AH-1Z helicopters, initial support, and training.

Notes

Total Cost reflects the procurement of 3 out of 12 total aircraft. The Total Cost will increase upon Contract Award of the additional 9 aircraft.

PK-P-SBO is the only H-1 Upgrades active FMS case at this time.

Nuclear Costs

None

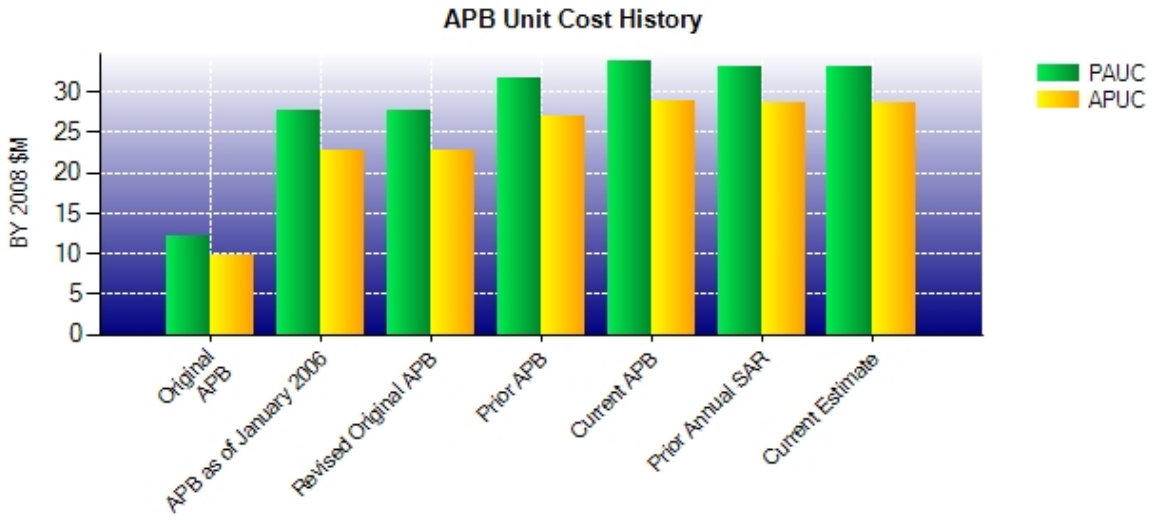
Unit Cost

Unit Cost Report

Item	BY 2008 $M Current UCR Baseline (Feb 2011 APB)	BY 2008 $M Current Estimate (Dec 2015 SAR)	% Change
Program Acquisition Unit Cost			
Cost	11953.0	11614.7	
Quantity	353	351	
Unit Cost	33.861	33.090	-2.28
Average Procurement Unit Cost			
Cost	10088.4	9894.6	
Quantity	349	347	
Unit Cost	28.907	28.515	-1.36

Item	BY 2008 $M Revised Original UCR Baseline (Apr 2005 APB)	BY 2008 $M Current Estimate (Dec 2015 SAR)	% Change
Program Acquisition Unit Cost			
Cost	7852.2	11614.7	
Quantity	284	351	
Unit Cost	27.649	33.090	+19.68
Average Procurement Unit Cost			
Cost	6352.9	9894.6	
Quantity	280	347	
Unit Cost	22.689	28.515	+25.68

Unit Cost History



Item	Date	BY 2008 $M		TY $M	
		PAUC	APUC	PAUC	APUC
Original APB	Oct 1996	12.089	9.903	12.491	10.554
APB as of January 2006	Apr 2005	27.649	22.689	28.172	23.843
Revised Original APB	Apr 2005	27.649	22.689	28.172	23.843
Prior APB	Dec 2008	31.738	26.946	34.524	30.208
Current APB	Feb 2011	33.861	28.907	36.079	31.582
Prior Annual SAR	Dec 2014	33.192	28.644	35.672	31.626
Current Estimate	Dec 2015	33.090	28.515	35.401	31.329

SAR Unit Cost History

Initial SAR Baseline to Current SAR Baseline (TY $M)									
Initial PAUC Development Estimate	Changes								PAUC Production Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
12.491	-0.078	-1.056	1.772	2.351	15.397	0.000	3.647	22.033	34.524

Current SAR Baseline to Current Estimate (TY $M)									
PAUC Production Estimate	Changes								PAUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
34.524	-0.710	0.071	-0.055	0.275	1.422	0.000	-0.126	0.877	35.401

Initial SAR Baseline to Current SAR Baseline (TY $M)									
Initial APUC Development Estimate	Changes								APUC Production Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
10.554	-0.003	-0.686	1.722	1.632	13.299	0.000	3.690	19.654	30.208

Current SAR Baseline to Current Estimate (TY $M)									
APUC Production Estimate	Changes								APUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
30.208	-0.725	0.046	-0.055	0.000	1.982	0.000	-0.127	1.121	31.329

SAR Baseline History				
Item	SAR Planning Estimate	SAR Development Estimate	SAR Production Estimate	Current Estimate
Milestone I	N/A	N/A	N/A	N/A
Milestone II	N/A	Sep 1996	Sep 1996	Oct 1996
Milestone III	N/A	Feb 2004	May 2008	Sep 2008
IOC	N/A	Jun 2005	Mar 2008	Aug 2008
Total Cost (TY $M)	N/A	3547.5	12186.8	12425.9
Total Quantity	N/A	284	353	351
PAUC	N/A	12.491	34.524	35.401

Cost Variance

Summary TY $M				
Item	**RDT&E**	**Procurement**	**MILCON**	**Total**
SAR Baseline (Production Estimate)	1644.1	10542.7	--	12186.8
Previous Changes				
Economic	+2.5	-208.2	+0.4	-205.3
Quantity	--	--	--	--
Schedule	--	-18.5	--	-18.5
Engineering	+96.7	--	--	+96.7
Estimating	-206.2	+643.1	+17.2	+454.1
Other	--	--	--	--
Support	--	+78.3	--	+78.3
Subtotal	-107.0	+494.7	+17.6	+405.3
Current Changes				
Economic	-0.2	-43.5	-0.1	-43.8
Quantity	--	-44.2	--	-44.2
Schedule	--	-0.7	--	-0.7
Engineering	--	--	--	--
Estimating	+0.2	+44.7	+0.1	+45.0
Other	--	--	--	--
Support	--	-122.5	--	-122.5
Subtotal	--	-166.2	--	-166.2
Total Changes	-107.0	+328.5	+17.6	+239.1
CE - Cost Variance	1537.1	10871.2	17.6	12425.9
CE - Cost & Funding	1537.1	10871.2	17.6	12425.9

Summary BY 2008 $M				
Item	**RDT&E**	**Procurement**	**MILCON**	**Total**
SAR Baseline (Production Estimate)	1799.2	9404.2	--	11203.4
Previous Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	--	-20.9	--	-20.9
Engineering	+83.6	--	--	+83.6
Estimating	-178.9	+545.8	+15.9	+382.8
Other	--	--	--	--
Support	--	+67.8	--	+67.8
Subtotal	-95.3	+592.7	+15.9	+513.3
Current Changes				
Economic	--	--	--	--
Quantity	--	-34.6	--	-34.6
Schedule	--	-3.3	--	-3.3
Engineering	--	--	--	--
Estimating	+0.2	+39.2	+0.1	+39.5
Other	--	--	--	--
Support	--	-103.6	--	-103.6
Subtotal	+0.2	-102.3	+0.1	-102.0
Total Changes	-95.1	+490.4	+16.0	+411.3
CE - Cost Variance	1704.1	9894.6	16.0	11614.7
CE - Cost & Funding	1704.1	9894.6	16.0	11614.7

Previous Estimate: December 2014

RDT&E	$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	-0.2
Adjustment for current and prior escalation. (Estimating)	+0.2	+0.2
RDT&E Subtotal	+0.2	0.0

Procurement	$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	-43.5
Adjustment for current and prior escalation. (Estimating)	+15.6	+17.7
Revised estimate to reflect the application of new outyear inflation indices. (Estimating)	+19.2	+23.0
Quantity variance resulting from a decrease of 2 helicopters from 349 to 347. (Subtotal)	-46.1	-56.5
Quantity variance resulting from a decrease of 2 helicopters from 349 to 347. (Quantity)	(-41.1)	(-50.3)
Allocation to Schedule resulting from Quantity change. (Schedule) (QR)	(+0.1)	(+0.1)
Allocation to Estimating resulting from Quantity change. (Estimating) (QR)	(-5.1)	(-6.3)
Additional quantity variance resulting from procurement profile adjustments in FY 2016 through FY 2019. (Quantity)	+6.5	+6.1
Realignment of funding resulting from procurement buy profile adjustments in FY 2016 through FY 2019. (Schedule)	0.0	+1.7
Additional schedule variance resulting from procurement profile adjustments in FY 2016 through FY 2019. (Schedule)	-3.4	-2.5
Revised cost estimate in FY 2014 for M-299 life of type buy for obsolescence. (Estimating)	+14.3	+16.1
Revised cost estimate in FY 2016 for Target Sight System Engineering Change Orders and repair. (Estimating)	+8.0	+9.0
Revised cost estimate due to updated procurement strategy and unit prices for Government Furnished Equipment. (Estimating)	-12.8	-14.8
Adjustment for current and prior escalation. (Support)	+2.4	+2.6
Decrease in Other Support due to updated support strategy and realignment of funds to accommodate the purchase of an additional aircraft in FY 2016. (Support)	-106.5	-125.7
Increase in Initial Spares due to revised cost estimate. (Support)	+0.5	+0.6
Procurement Subtotal	-102.3	-166.2

(QR) Quantity Related

MILCON	$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	-0.1
Adjustment for current and prior escalation. (Estimating)	+0.1	+0.1
MILCON Subtotal	+0.1	0.0

Contracts

Contract Identification

Appropriation: Procurement
Contract Name: H-1 Upgrades Production Contract Lot 8
Contractor: Bell Helicopter Textron
Contractor Location: 600 Hurst Blvd
Hurst, TX 76053
Contract Number: N00019-10-C-0015
Contract Type: Firm Fixed Price (FFP)
Award Date: February 05, 2010
Definitization Date: July 25, 2011

Contract Price							
Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
50.3	N/A	33	600.4	N/A	33	600.4	600.4

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to the contract award for the Lot 8 UH-1Y and AH-1Z aircraft. The current contract represents the definitization of the Advanced Acquisition Contract for long lead items and, as a result, the Initial Contract Price Target increased from $50.3M to the Current Contract Price Target of $600.4M.

Cost and Schedule Variance Explanations

Cost and Schedule Variance reporting is not required on this (FFP) contract.

Contract Identification

Appropriation: Procurement

Contract Name: H-1 Upgrades Production Contract Lot 9

Contractor: Bell Helicopter Textron

Contractor Location: 600 Hurst Blvd
Hurst, TX 76053

Contract Number: N00019-11-C-0023

Contract Type: Firm Fixed Price (FFP)

Award Date: March 14, 2011

Definitization Date: October 16, 2012

Contract Price							
Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
56.3	N/A	26	474.7	N/A	25	474.7	474.7

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to the contract award for the Lot 9 UH-1Y and AH-1Z aircraft. The Initial Contract Price Target was for the Advanced Acquisition Contract (AAC) for long lead items. The Initial Contract Price Target increased from $48.4M to $56.3M under a subsequent modification after the Continuing Resolution Authority expired to apply additional advanced procurement funding. The current contract represents the definitization of the AAC for long lead items, as well as other requirements in support of the Lot 9 production aircraft, resulting in a Current Contract Price Target of $474.7M.

Cost and Schedule Variance Explanations

Cost and Schedule Variance reporting is not required on this (FFP) contract.

Contract Identification

Appropriation: Procurement

Contract Name: H-1 Upgrades Production Contract Lot 10

Contractor: Bell Helicopter Textron

Contractor Location: 600 Hurst Blvd
Hurst, TX 76053

Contract Number: N00019-12-C-0009

Contract Type: Fixed Price Incentive(Firm Target) (FPIF)

Award Date: February 13, 2012

Definitization Date: December 27, 2012

Contract Price							
Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
56.7	N/A	25	570.1	586.0	28	570.1	570.1

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to the contract award for the Lot 10 UH-1Y and AH-1Z aircraft. The current contract represents the definitization of the Advanced Acquisition Contract for long lead items and, as a result, the Initial Contract Price Target increased from $56.7M to the Current Contract Price Target of $570.1M.

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (12/31/2015)	+2.2	-119.0
Previous Cumulative Variances	+8.3	-30.4
Net Change	-6.1	-88.6

Cost and Schedule Variance Explanations

The unfavorable net change in the cost variance is due to rework of Main Rotor Gearboxes driven by the need to inspect for, and replace as required, discrepant sub-assembly components, as well as higher than anticipated costs for cabin detail parts.

The unfavorable net change in the schedule variance is due to the impact of the poor quality of the Kaman cabin assembly component from previous ZBN Aircraft Production lots.

Contract Identification

Appropriation: Procurement
Contract Name: H-1 Upgrades Production Contract Lot 11
Contractor: Bell Helicopter Textron
Contractor Location: 600 Hurst Blvd
Hurst, TX 76053
Contract Number: N00019-13-C-0023
Contract Type: Fixed Price Incentive(Firm Target) (FPIF)
Award Date: April 01, 2013
Definitization Date: May 16, 2014

Contract Price							
Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
13.1	N/A	25	543.7	551.4	24	543.7	543.7

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to the contract award for the Lot 11 UH-1Y and AH-1Z aircraft. The current contract represents the reduction to the Lot 11 price associated with the Lot 12 Advanced Procurement of long lead items, resulting in a Current Contract Price Target of $543.7M.

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date	0.0	0.0
Previous Cumulative Variances	0.0	0.0
Net Change	+0.0	+0.0

Cost and Schedule Variance Explanations

None

Notes

Lot 11 includes two FY 2013-funded aircraft.
The contract modification to add Earned Value (EV) reporting awarded on September 30, 2015.
Data will be available in the next reporting period.

Contract Identification

Appropriation: Procurement
Contract Name: H-1 Upgrades Production Contract Lot 12
Contractor: Bell Helicopter Textron Inc.
Contractor Location: 600 E Hurst Blvd
Hurst, TX 76053
Contract Number: N00019-13-C-0023/12
Contract Type: Fixed Price Incentive(Firm Target) (FPIF)
Award Date: August 25, 2015
Definitization Date: August 25, 2015

Contract Price							
Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
59.7	59.7	26	623.4	635.0	34	623.4	623.4

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to receipt of additional funding in support of the Advanced Acquisition Contract (AAC) for long lead items and the subsequent definitization for 34 Lot 12 H-1 Upgrade Aircraft (15 UH-1Y and 19 AH-1Z (including 3 FMS Pakistan ZBN)) and Lot 13 AAC. FPI construct utilizes share ratios as follows: above target 50/50 and below target 50/50.

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date	0.0	0.0
Previous Cumulative Variances	--	--
Net Change	+0.0	+0.0

Cost and Schedule Variance Explanations

None

General Contract Variance Explanation

Cost and schedule variances are not reported for this contract, because earned value management reporting has not yet commenced due to an issue with the contract requirement for reporting and will be reported in the next available submission following receipt of data.

Notes

This is the first time this contract is being reported.

Deliveries and Expenditures

Deliveries				
Delivered to Date	**Planned to Date**	**Actual to Date**	**Total Quantity**	**Percent Delivered**
Development	4	4	4	100.00%
Production	184	174	347	50.14%
Total Program Quantity Delivered	188	178	351	50.71%

Expended and Appropriated (TY $M)			
Total Acquisition Cost	12425.9	Years Appropriated	21
Expended to Date	7551.0	Percent Years Appropriated	80.77%
Percent Expended	60.77%	Appropriated to Date	9800.4
Total Funding Years	26	Percent Appropriated	78.87%

The above data is current as of February 09, 2016.

Operating and Support Cost

Cost Estimate Details

Date of Estimate:	February 09, 2016
Source of Estimate:	POE
Quantity to Sustain:	349
Unit of Measure:	Aircraft
Service Life per Unit:	30.00 Years
Fiscal Years in Service:	FY 2007 - FY 2051

Aircraft quantity is 349 (not including four EMD assets not inducted into the Fleet).

Program currently funded to 347 aircraft; program of record remains 349 aircraft.

2016 inflation rates are included in this estimate.

PB17 Flight Hour controls from document 3871 are used in this estimate.

Cost estimate updated to reflect recovery of AH-1Z delivery schedule through FY 2017.

H-1 Procurement Profile: 189 AH-1Z, 160 UH-1Y.

H-1 Primary Authorized Aircraft profile: 149 AH-1Z, 125 UH-1Y.

Combined squadrons are composed of 15 AH-1Z and 12 UH-1Y aircraft.

The life cycle includes a 30-year service life with an average annual usage of 239 flight hours per AH-1Z aircraft and an average annual usage of 296 flight hours per UH-1Y aircraft accumulating a total of 8,130 operating aircraft years.

Each aircraft has a designed fatigue life of 10,000 hours per aircraft.

Attrition rates are 1% for AH-1Z and 0.7% for UH-1Y.

Pipeline rates are 10% for AH-1Z and 8.3% for UH-1Y.

Maintenance Costs consisting of Aviation Depot Level Repairable and Consumables are now estimated using a bottoms-up model, utilizing historical costs and reliability performance projections for both the UH-1Y and AH-1Z.

O&S cost estimate is based on three levels of organic maintenance with chargeable manning (fleet squadron) estimated at 100%.

Sustainment Strategy

The sustainment strategy for H-1 Upgrades has three major tenants: 1) ensuring Organizational, Intermediate, and Depot level maintenance capabilities are established and that the Program Office optimizes Fleet support based on a three level maintenance concept, 2) ensuring Intermediate level maintenance capability is established and expanded capability is implemented based on approved Business Case Analysis (BCAs) , and 3) establishing organic Depot level capability for core components using a direct approach that focuses on components that have the greatest impact on Fleet readiness to include ensuring the correct balance of government and original equipment manufacturer depot component

repair is maintained in support of Fleet readiness.

Antecedent Information

The H-1 antecedent estimate is a composite of AH-1W and UH-1N series aircraft. Cost per aircraft is the combined three-year (FY 2007 - FY 2009) average of Naval Visibility and Management of Operating and Support Costs Aviation Type Model Series Report database. Manpower for antecedent and upgrade aircraft are set equal as the table of organization is deemed to be equivalent. Antecedent aircraft have historically flown 21.7 flight hours per month and 260 flight hours annually.

Annual O&S Costs BY2008 $M		
Cost Element	**H-1 Upgrades Average Annual Cost Per Aircraft**	**UH-1N/AH-1W (Antecedent) Average Annual Cost Per Aircraft**
Unit-Level Manpower	1.310	1.310
Unit Operations	0.370	0.230
Maintenance	1.430	1.510
Sustaining Support	0.090	0.110
Continuing System Improvements	0.190	0.340
Indirect Support	0.520	0.530
Other	0.000	0.000
Total	3.910	4.030

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Item	Total O&S Cost $M			
	H-1 Upgrades			UH-1N/AH-1W (Antecedent)
	Current Production APB Objective/Threshold		Current Estimate	
Base Year	33301.8	36632.0	31711.7	32723.4
Then Year	0.0	N/A	48904.4	N/A

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Equation to Translate Annual Cost to Total Cost

H-1 Upgrades Average Annual Cost Per Aircraft = Total O&S Cost (BY) / Total Operating Aircraft Years

$3.9 M Per Year Per Aircraft = $31,711.7M / 8,130 Total Operating Aircraft Years

O&S Cost Variance		
Category	**BY 2008 $M**	**Change Explanations**
Prior SAR Total O&S Estimates - Dec 2014 SAR	33929.8	
Programmatic/Planning Factors	-1937.9	Updated with Aircraft Program Data File (APDF) v119, updated with PB17 flight hours, and changed the

		calculation to reflect the APDF PAA until TAI cannot meet 50% of squadron's PAA.
Cost Estimating Methodology	1862.8	Updated flight hours to reflect actuals and Planning Factors Memo. Continued transitioning to a Y/Z actuals based estimate.
Cost Data Update	-2085.4	Updated Flying Hour Program CPH based on latest Flying Hour Program data using FY 2015 prices and updated inflation to the 2016 indices.
Labor Rate	2.2	Incorporated update for depot labor rates.
Energy Rate	-59.8	Updated Fuel cost /gal to FY 2015 rate for JP5.
Technical Input	0.0	
Other	0.0	
Total Changes	-2218.1	
Current Estimate	31711.7	

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Disposal Estimate Details

Date of Estimate: February 09, 2016

Source of Estimate: POE

Disposal/Demilitarization Total Cost (BY 2008 $M): Total costs for disposal of all Aircraft are 80.2

This Rough Order of Magnitude estimate will be refined as the System Disposal Plan Annex to the Life Cycle Sustainment Plan is developed.